ATOMIC ENERGY newsletter®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
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Dear Sir:

Some $1,350,000 worth of radiological survey meters will be supplied by Anton Electronics Laboratories, Brooklyn, to the Office of Civilian Defense Mobilization. Order was recently received by Anton, whose parent Anton-Imco Electronics Corp., is a newly-acquired subsidiary of Lionel Corp.....Use of hydrogen-3 (tritium) activated paint rather than the customary radium paint will be permitted for producing luminous watches and clocks under amendment by USAEC of its licensing and byproducts materials regulations. Twenty-five mc of tritium would be maximum permitted in each watch or clock under the proposal. (Other PRODUCT NEWS, p.4 this LETTER.)

Basic research in evaluating biological effects of cosmic radiation present in outer space will be done by Controls for Radiation, Inc., Cambridge, Mass., under contract awarded the firm by the Air Force's research and development command. To simulate the effects of space radiation, biological specimens will be exposed to radiation from cyclotrons and linear accelerators. The biological material chosen for study by Controls for Radiation is a mammalian cell which is representative of the types of cells in animals and humans. (Other CONTRACT NEWS, p.3 this LETTER.)

West Coast branch has been opened in Los Angeles by Vitro Corp. of America to service the firm's customers in nuclear, chemical, electronics and other industries. Divisions of the company represented there include Vitro Engineering, Nems-Clarke, and Vitro Laboratories. Vitro Engineering has designed more than 25 nuclear research and test facilities, including radiological laboratories, nuclear reactors, etc.; Nems-Clarke produces electronic components; and Vitro Laboratories are doing missile work for the Navy. (Other MANUFACTURERS' NEWS, p.4 this LETTER.)

Public reporting, on a regular basis, of radioactivity levels in the vicinity of USAEC installations, is being undertaken by the Commission. An initial group of reports, to become available this month, will cover the first three months of 1960. The data are produced from routine monitoring programs around USAEC plants and laboratories where operations are of such a nature that plant perimeter radioactivity monitoring surveys are required.

Stocks of the two largest beryllium refiners and fabricators in the U.S. have been added to the portfolio of Lehman Corp., large closed-end investment company. (Lehman reported its total net assets rose to $302,022,836 on June 30, 1960 from $290,371,216 three months earlier but trailed total assets of $309,888,723 a year earlier.) During the second quarter of this year Lehman bought 10,000 shares of Brush Beryllium Co., and 10,000 shares of Beryllium Corp. Both firms are suppliers to the nuclear industry. (Domestic consumption of beryl was at an all-time high of 8,173 short tons in 1959, while domestic production was 528 tons, lowest point since 1948; this LETTER, July 5, 1960, p.3) (Other FINANCIAL NEWS, p.2 this LETTER.)

ATOMIC ENERGY BUSINESS NEWS...

CONTROL OF NUCLEAR FIRM ACQUIRED: The Martin Co., Baltimore, has acquired controlling interest in the outstanding stock and debentures of Nuclear Corporation of America through purchase from Charles W. Engelhard and associates. Some 38.8% of the 4,160,000 outstanding common shares and more than $1 million of convertible debentures were involved as were a part of the stock options held by Mr. Engelhard. Nuclear Corp. manufactures and installs industrial and medical equipment using radioactive material; sells and manages the use of these materials; and offers consulting services in the nuclear and electronic fields. It also produces rare earth metals, alloys and compounds. The company owns a plant at Denville, N.J., and occupies leased space in Burbank, Calif. As of Dec. 31, 1959 assets were listed as $1,784,000. The company had a net loss in 1959 of $260,161 on sales of $1,859,034 compared with 1958 loss of $521,827 on sales of $2,020,886. Martin, prime contractor on the Titan intercontinental ballistic missile, had total assets Dec. 31, 1959 of $180,800,000. Sales last year were $523,707,022 with net income of $13,336,981. Martin, one of the first U.S. aircraft manufacturers to abandon its airframe work, has for many years been active in nuclear development. (Martin common stock closed on the New York Stock Exchange for a gain of 1 1/4 points for the day, and Nuclear Corp. gained 1/8 point and closed at 4 1/2 on the American Stock Exchange when the transaction became known last fortnight.)

NUCLEAR FUEL PROCESSING PLANT SITE DEDICATED: Dedication ceremonies last fortnight at Mol, Belgium, marked inauguration of Eurochemic's processing plant for nuclear fuel elements. At the dedication ceremonies Prince Albert of Belgium noted that the sponsors included members of the two European economic groups: the Common Market and the European Free Trade Association. So far, Eurochemic has let a design contract, an administration building is half finished, and plant construction is scheduled to start in 1961. It is expected that the plant will be in semi-works operation by 1963. Eurochemic, a cooperative undertaking of Austria, Belgium, Denmark, France, W. Germany, Italy, Holland, Norway, Portugal, Spain, Switzerland, Sweden, and Turkey, will furnish facilities for the participating countries none of which, except for France, has a national processing plant for spent fuel. The project, originated by the European Nuclear Energy Agency, of the O.E.E.C., now has about $21,500,000 of available funds with $15,000,000 budgeted for construction and the balance for operation in the early years.

CONSOLIDATION OF URANIUM MINES FORMALLY COMPLETED: Rio Algom Mines, the company resulting from the amalgamation of Northspan, Pronto, Milliken, and Algom, was officially listed on the Canadian and American Stock Exchange last fortnight following its receipt of provincial letters patent. Holders of shares in the amalgamating companies will exchange them on the basis established by Rio Tinto Mines, the controlling organization.

INCINERATOR REDUCES COST OF CONTAMINATED WASTE DISPOSAL BY 75%: A special incinerator built by Plibrico Sales and Service, El Cerrito, Calif., to specifications of General Electric Co.'s Atomic Power Equipment Dep't., San Jose, Calif., is expected to reduce the cost of disposing of contaminated wastes from the plant's fuel manufacturing operation by 75%. The incinerator consists of three basic units: a high-temperature furnace box which completely burns all combustible material; spray cooling equipment; and an absolute filtration system which traps all radioactive particles in the exhaust gases. Material to be burned is first loaded into an air-lock from which it is ejected into the furnace box. As it is burned a fan pulls gases through the filter. The filter is changed when about three or four pounds of dirt particles are trapped in it. This is indicated by a pressure drop of 4-inches in the water level indicator on the downstream side of the fan. About 100-lbs. per hour of material can be burned. Disposing of it through an atomic waste disposal firm would cost about $160; the ashes from the material, about 1/10 the original volume, and the filters, can be disposed of for a fraction of the cost.

FRANCO-AMERICAN FIRM TO BE UNDER FRENCH DIRECTION: Dynatom, new French reactor manufacturing firm formed jointly by North American Aviation, Societe Alsacienne de Constructions Mecaniques, and Chantiers de l'Atlantique, is to be headed by Vice Admiral Leurin, nominee of the French interests. J. L. Atwood, president of North American, and Chauncey Starr, president of NA's Atomics International division, are directors.

ATOMIC ENERGY CONTRACT NEWS...

CONTRACTS AWARDED: Contract in amount of $3,585,700 has been awarded by the USAEC to Nuclear Development Corp. of America, White Plains, N.Y., for one year development and preliminary design work on a compact nuclear power plant. Some $1,200,000 of the contract award will be allocated to a subcontract between Nuclear Development and General Motors Corp., Indianapolis, Ind. The two companies had made a joint proposal previously for the plant, which would have a power rating of 2000 to 3000 electrical kw. Main interest in this plant is by the Army's Corps of Engineers in connection with military activities.

Contract has been awarded Radiations Dynamics, Inc., Westbury, L.I., by Convair division of General Dynamics Corp., for 3 Mev, 30 kw, electron and ion accelerator. To be used by Convair's physics division in San Diego, for space radiation research, it is believed the most powerful of its kind for the voltage range covered. This range will be 100 Kev to 3 Mev with ion and electron currents as high as 10 ma. Convair will provide a structure with 4-ft. thick concrete walls to shield against x-rays produced; two of the test cells will have 6-ft. thick concrete walls for protection against neutrons and x-rays.

Technical aspects of operating, testing and maintaining Army field nuclear power plants will be undertaken by Alco Products, Inc., Schenectady, N.Y., under $168,000 contract the company has received from the Army's Engineer Center, Fort Belvoir, Va. Six nuclear engineers, four technicians, and two administrative people from Alco will work at Fort Belvoir July 1 through November 30 and will compile and furnish written engineered solutions to problems peculiar to the use of field-type nuclear power plants. In addition, the contract calls for back up services to be furnished by Alco's engineering group at Schenectady, N.Y.

Radiation Applications, Inc., Long Island City, N.Y., under one year USAEC contract, is working with Oak Ridge National Laboratory on foam separation of radioactive wastes. Main objectives are improved concentration of nuclides (strontium-90, etc.) to reduce bulk and hence lower the cost of disposal of radioactive wastes. Process used, for which Radiation Applications has pending patent applications, concerns surface-active agents which react selectively with metal ions and which cause them to become concentrated in the foam. (Another foam-concentrating project of the company is aimed at recovery of cesium-137; this is for the USAEC's Office of Isotope Development.)

Contract to develop a simple non-radioactive system for training military personnel in radioactivity detection and decontamination has been awarded Tracerlab, Inc., by the Navy's Training Devices Center. The system uses few materials. Non-toxic material, simulating fall-out, is supplied as a solid, liquid or powder. To detect this simulated radioactivity, military personnel will use a Tracerlab- designed instrument similar to a Geiger counter. The instrument incorporates an ultraviolet light source to excite the phosphor, and a photomultiplier tube. In operation, it will produce the characteristic click of a Geiger counter and will give indications on a meter of "radioactive" strength.

CONTRACT NOTES: With contract date of Dec. 8, 1960 for turn-over by General Electric Co. of the Dresden nuclear power station which was built by GE for Commonwealth Edison Co. and the co-sponsoring Nuclear Power Group, Inc., full-power operation at 180,000 kw was demonstrated last fortnight for the first time when the plant was cut in to Commonwealth Edison's transmission lines. Dresden had been under gradual step-ups since last April, when first power generation began on test basis. (Under construction for three years, and expected to be completed within the original schedule, Dresden was built for a fixed price of $45 million of which Commonwealth Edison, which owns and will operate the plant, is paying $30 million plus site and overhead costs of something over $6 million. The $15 million balance of the contract price is being paid by the participating Nuclear Group as a research and development expense. GE also is contributing substantial amounts above the contract price for additional research and development expense.)

CONTRACT NEGOTIATIONS TERMINATED: Babcock & Wilcox, New York, and the USAEC have mutually terminated negotiations of a contract under which the company would have provided the Commission with test irradiation services. Negotiations had been underway since July, 1959. B&W had proposed to provide test irradiation services for a five year period in a 60,000 thermal kw test reactor to be built in Lynchburg, Va. The Commission will now use space in two privately-owned test reactors now in operation. Anticipated demand by industry to use this space has not materialized.

PRODUCTS, PROCESSES, INSTRUMENTS...

PRODUCT NEWS: New line of photomultiplier tubes specially designed for counting or scanning applications is being marketed by CBS Laboratories, Stamford, Conn. They are supplied with visible or infra-red response and 10 stages of multiplication; or with quartz windows with ultraviolet response.

New scintillation detectors offered by Nuclear Interprises, Ltd., Winnipeg, Canada, include an alpha particle detector; a hollow plastic scintillator for beta ray spectroscopy and for multiple studies of beta emitters; a gamma flow detector for continuous monitoring of gamma effluents; and a liquid scintillator for beta counting of filter paper chromatograms.

New plastic filter material for removing submicron particles from fluids and gases is available from Gelman Instrument Co., Chelsea, Michigan. Suggested uses include determinations of radioactive particles in fluids and gases, etc. The filter retains all particles on its surface; hence very little correction is necessary for self-absorption of the filter when measuring weak alpha and beta emitters.

Depleted uranium may now be used as aircraft counterweights under an amendment to licensing regulations of the USAEC. It has been found that the depleted uranium is an excellent material for use as counterweights in the wing tips and tail pieces of jet commercial planes. Its use is said to offer better aircraft performance and greater economy than other materials now available for this purpose.

PRODUCT NOTES: Repercussions of the cutback in Canadian uranium production are being felt among sulfuric acid producers supplying uranium mills there. Production has been reduced by Canadian Industries, Ltd., which had been supplying three Blind River uranium producers from its new 200-tons per day acid plant at Copper Cliff, Ont. At the Bancroft, Ont., acid plant of Nichols Chemical division of Allied Chemical of Canada shipments are considerably below former levels. And the acid plant of Noranda Mines at Big Cutler, Ont., has been gradually reducing production from a 1,000 tons per day output to the point where output is now about 50% of this former level.

Some success in treating otherwise incurable malignant tumors using a radioactive drug incorporating tritium has been reported by physicians in a research group at Cambridge University, England. Twenty patients were treated with the drug: tritiated 2-methyl 1-1,4, naphthohydroquinone diphosphoric ester tetrasodium salt.

An Isotope Information Bureau has been set up by the U.K. Atomic Energy Authority on the ground floor of its office in Charles II St., London. It provides industrial firms with a convenient source of information on applications of radioisotopes to factory processes.

MANUFACTURERS' NEWS: Bendix Corp., Cincinnati, Ohio, has appointed Atomic Accessories, Inc., Valley Stream, N.Y., distributor for its complete line of direct-reading dosimeters and chargers. National sales coverage will be given the Bendix products through sales offices in the U.S. of Baird-Atomic, Inc., parent firm of Atomic Accessories. (The Bendix pen-type direct-reading dosimeters, for x-rays and gamma-rays, or neutrons only, come in a full range, from 200 mr to 2000 r. The neutron-only direct-reading dosimeters feature a rugged boron-coated ion chamber and will determine exposures to neutrons in the presence of gammas. Their range is 0-2 times permissible daily dose units.)

Regional sales office to handle Tracerlab-Keleket sales activities in the New York-New Jersey area will be housed in new building now under construction in Lyndhurst, New Jersey. Increased sales of Tracerlab, Inc., prompted the expansion according to H. S. Myers, the company's vice-president for marketing.

Jordan Electronics division of Victoreen Instrument Co., is adding 22,000 sq. ft. of production space in its Alhambra, Calif. plant to handle increased production runs of missile components and other products. Jordan has produced and offered electronic devices for nuclear applications; Victoreen, pioneer in nuclear instrumentation develops and produces a wide variety of nuclear and other electronic devices.

Some $3 million worth of reactor fuel elements, fabricated by Atomic Power Equipment department of General Electric Co., San Jose, Calif., have been shipped from the U.S. to Germany. The nuclear fuel, consisting of 6,300 kg of slightly enriched uranium dioxide fabricated into 100 elements, are for W. Germany's first nuclear power station, nearing completion at Kahl, near Frankfort. International General Electric Operations S.A. contracted for the supply of the Kahl reactor which will be owned by Rheinisch Westfalisches Elektrizitatswerk and Bayernwerk A.G.

ATOMIC ENERGY PATENT DIGEST...

PATENTS ISSUED July 5, 1960 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Method and apparatus for making isotropic propertied beryllium sheet. Robert E. Lenhart, inventor. No. 2,943,933 assigned to The Beryllium Corp., Reading, Pa. (2) Apparatus for investigating earth formations. Frank F. Johnson, Jay Tittman, inventors. No. 2,944,148 assigned to Schlumberger Well Surveying Corp., Houston, Tex. (3) Radioactivity earth exploration. Gerhard Herzog, inventor, No. 2,944,149 assigned to Texaco, Inc. (4) Fire detection, John B. Johnson, Neal T. Williams, inventors. No. 2,944,152 assigned to McGraw-Edison Co., Elgin, Ill. (5) Energy calibration source holder. Walter Brown, inventor. No. 2,944,153 assigned to North American Philips Co., Mt. Vernon, N.Y. (6) Radiation detector. Nicholas Anton, inventor. No. 2,944,176 issued to inventor of record.

PATENTS ISSUED July 5, 1960 to GOVERNMENTAL ORGANIZATIONS: (1) Processing of nitrate solutions containing thorium and uranium-233. William W. Morgan, inventor. No. 2,943,923 assigned to Atomic Energy of Canada, Ltd., Ottawa, Ontario, Canada. (2) Means for modulating and detecting neutron flux. Frank S. Replogle, Jr., Donald A. Gordon, inventors. No. 2,944,150 assigned to Secretary of the U.S. Navy. (3) Catalytic recombiner for a nuclear reactor. L. D. Percival King, inventor. No. 2, 943,921 assigned to USAEC. (4) Dual-ridge antenna. Dean K. Yearout, Harvey L. Jergins, inventors. No. 2,944,258 assigned to USAEC.

PATENTS ISSUED July 12, 1960 to GOVERNMENTAL ORGANIZATIONS: (1) Magnetic prisms used for separating ionized particles. Henri Bruck, Gabriel Gendreau, Marcel Salvat, inventors. No. 2,945,125 assigned to Commissariat a l'Energie Atomique, Paris, France. (2) Method for conversion of hexavalent uranium compounds to uranium tetrafluoride. James E. Moore, inventor. No. 2,944,873 assigned to USAEC.

PATENTS ISSUED July 12, 1960 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Automatic process control with radioisotopes. George H. Hanson, inventor. No. 2,945,127 assigned to Phillips Petroleum Co. (2) Fluorescent structures and method of manufacture. Kuan-Han Sun, Paul R. Malmberg, Frances A. Pecjak, inventors. No. 2,945,128 assigned to Westinghouse Electric Corp., E. Pittsburg, Pa. (3) Calibrator for radioactivity well logging instruments. Gilbert Swift, Dale E. Barkalow, inventors. No. 2,945,129 assigned to Well Surveys, Inc. (4) Thickness measuring gauges using radioactive material. Willie E. Thompson, Laurence E. Taylor, inventors. No. 2,945,130 assigned to Ekco Electronics, Ltd., Southend-on-Sea, England. (5) Matching circuit for radiation detectors. Robert W. Astheimer, inventor. No. 2,945,131 assigned to Barnes Engineering Co., Stamford, Conn.

OUTSIDE THE U.S....research & development...

INDIA: Research and engineering test reactor at Trombay, India, built through the Colombo Plan as a joint project of Canada and India, went into operation last week. The startup climaxed five years of work by Atomic Energy of Canada, Ltd., and the Indian Department of Atomic Energy. Known as the Canada-India reactor (CIR), it is a modified version of the Chalk River NRX reactor with full output of 40,000 kw of heat. Some 48 Indian engineers, operators and maintenance men were trained by A.E.C.L. at Chalk River. Shawinigan Engineering Co., Montreal, did detailed design of CIR. Foundation Overseas, Ltd., subsidiary of Foundation Co. of Canada, handled erection of the reactor and the containment building. Canada's share of the cost, which covers the reactor, the startup and the training of the Indian personnel, is approximately $9 million.

GREAT BRITAIN: New zero energy reactor is to be built by the U.K. Atomic Energy Authority at the Atomic Energy Establishment, Winfrith. It will be known as ZEBRA (zero energy breeder reactor assembly). Design will be such as to permit the study of the neutron physics of a wide variety of fuel assemblies containing uranium and plutonium. It is planned to have the zero energy reactor in operation during 1962. Mainly, ZEBRA will be used to obtain information needed for the design of a prototype likely to be the next step in the development of the fast reactor by the Authority.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

July 19, 1960.